2SD755, 2SD756, 2SD756A

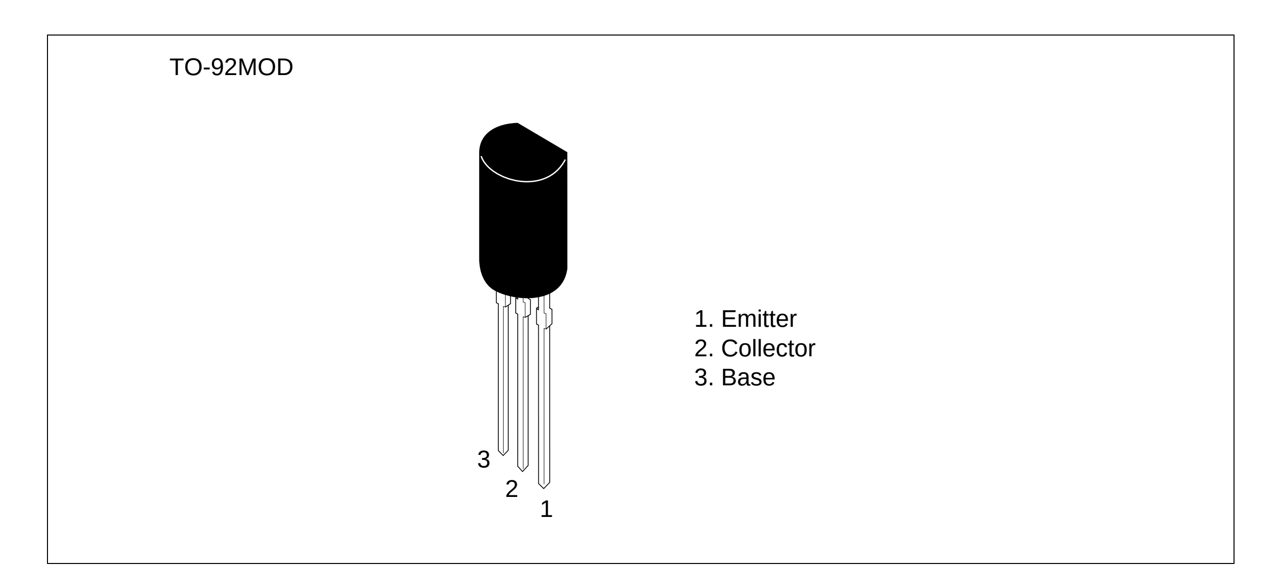
Silicon NPN Epitaxial

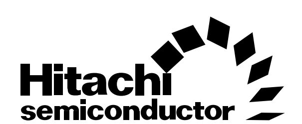
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Application

- Low frequency high voltage amplifier
- Complementary pair with 2SB715, 2SB716 and 2SB716A

Outline





Absolute Maximum Ratings (Ta = 25°C)

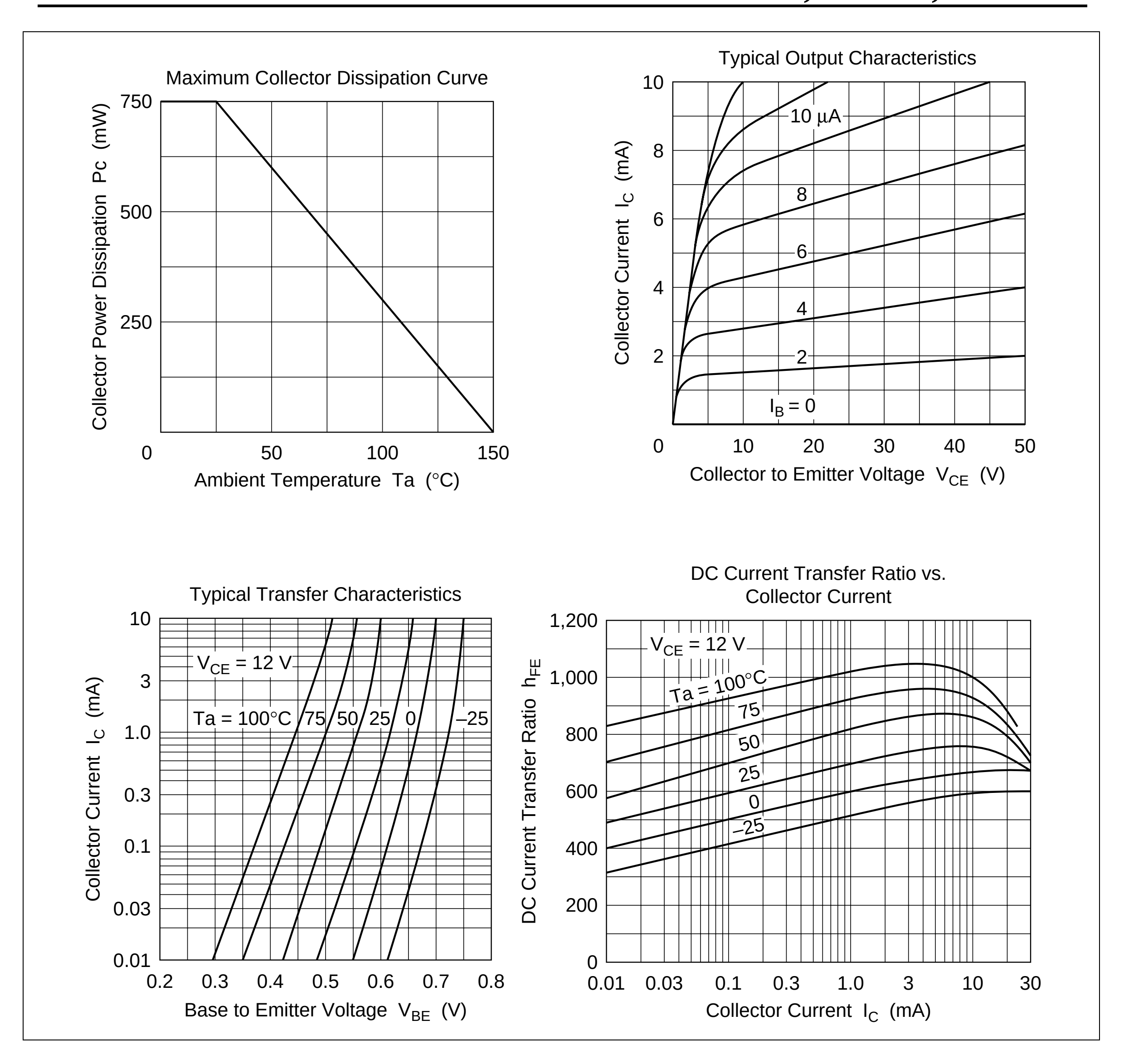
Item	Symbol	2SD755	2SD756	2SD756A	Unit
Collector to base voltage	V_{CBO}	100	120	140	V
Collector to emitter voltage	V_{CEO}	100	120	140	V
Emitter to base voltage	V_{EBO}	5	5	5	V
Collector current	I_C	50	50	50	mA
Collector power dissipation	P_C	750	750	750	mW
Junction temperature	Tj	150	150	150	°C
Storage temperature	Tstg	–55 to +150	–55 to +150	–55 to +150	°C

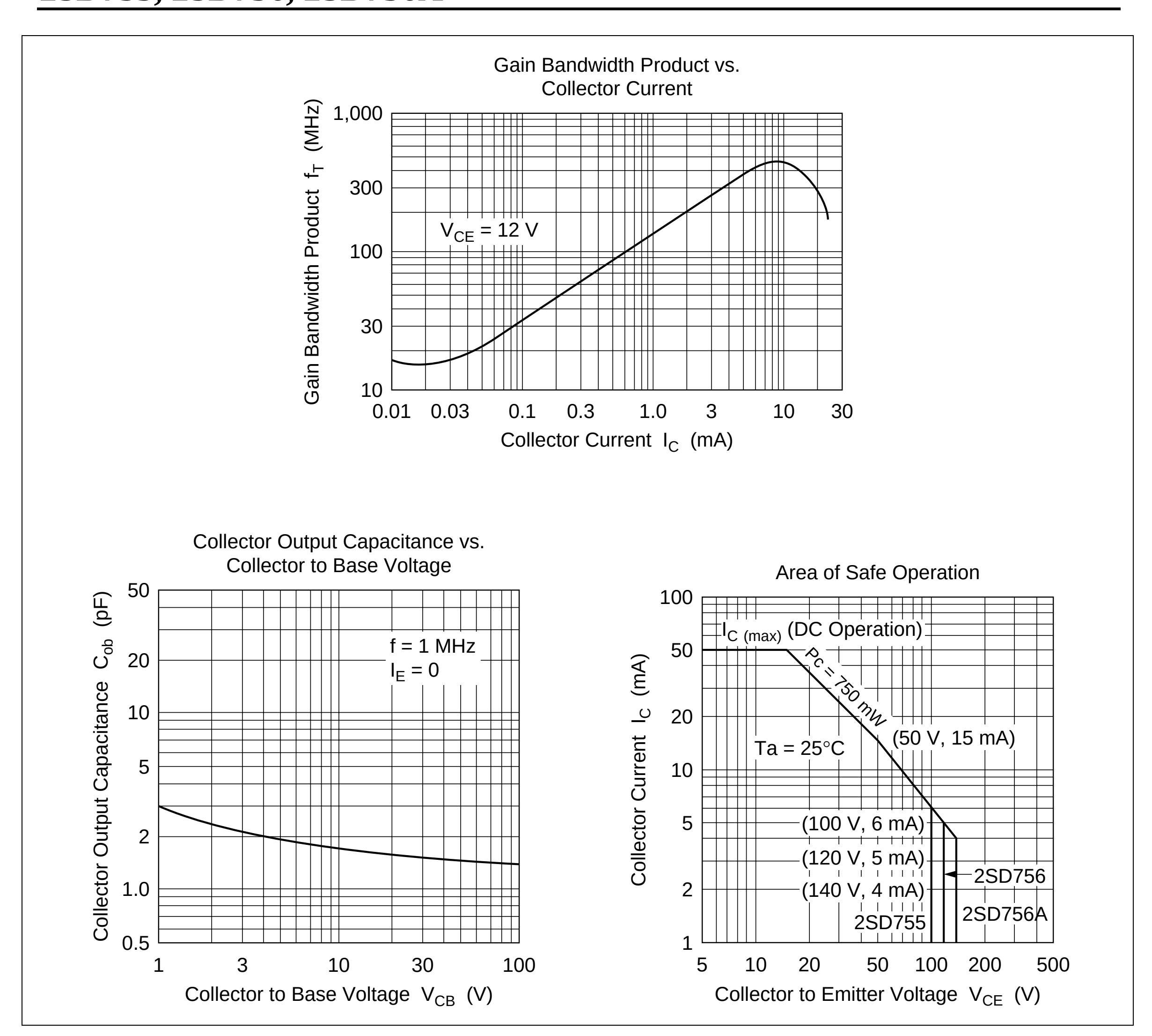
Electrical Characteristics (Ta = 25°C)

		2SD755			2SD756			2SD756A				
Item	Symbol	Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	Unit	Test conditions
Collector to emitter breakdown voltage	$V_{(BR)CEO}$	100	—	—	120	—	—	140	—	—	V	I_C = 1 mA, $R_{BE} = \infty$
Collector to base breakdown voltage	$V_{(BR)CBO}$	100	—	—	120	—	—	140	—	—	V	I_C = 10 µA, I_E = 0
Collector cutoff current	I_{CBO}	—	—	0.5	—	—	0.5	—	—	0.5	µA	V_{CB} = 100 V, I_E = 0
DC current transfer ratio	h_{FE1}*1	250	—	1200	250	—	800	250	—	500		V_{CE} = 12 V, I_C = 2 mA
	h_{FE2}	125	—	—	125	—	—	125	—	—		V_{CE} = 12 V, I_C = 10 mA
Base to emitter voltage	V_{BE}	—	—	0.75	—		0.75	—	—	0.75	V	V_{CE} = 12 V, I_C = 2 mA
Collector to emitter saturation voltage	$V_{CE(sat)}$	—	—	0.2	—	—	0.2	—	—	0.2	V	I_C = 10 mA, I_B = 1 mA
Gain bandwidth product	f_T	—	350	—	—	350	—	—	350	—	MHz	V_{CE} = 12 V, I_C = 5 mA
Collector output capacitance	Cob	—	1.6	—	—	1.6	—	—	1.6	—	pF	V_{CB} = 25 V, I_E = 0, f = 1 MHz

Note: 1. The 2SD755, 2SD756 and 2SD756A are grouped by h_{FE1} as follows.

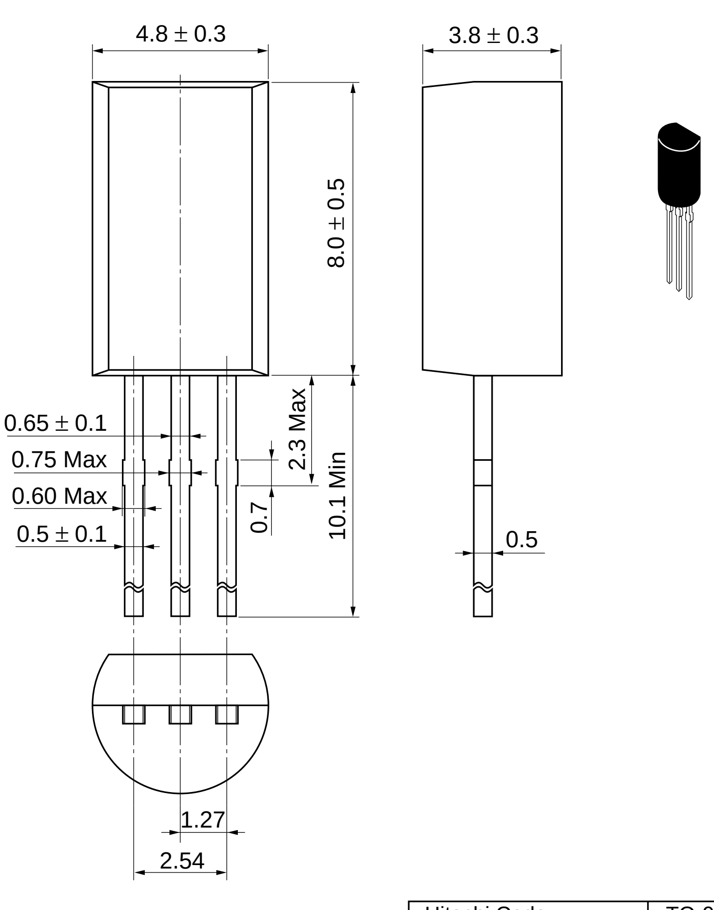
	D	E	F
2SD755	250 to 500	400 to 800	600 to 1200
2SD756	250 to 500	400 to 800	—
2SD756A	250 to 500	—	—


Maximum Collector Dissipation Curve
Collector Power Dissipation Pc (mW)
750
500
250
0
50
100
150
Ambient Temperature Ta (°C)
Typical Output Characteristics
Collector Current I_C (mA)
10
8
6
4
2
0
10 µA
8
6
4
2
I_B = 0
10
20
30
40
50
Collector to Emitter Voltage V_{CE} (V)
Typical Transfer Characteristics
Collector Current I_C (mA)
10
3
1.0
0.3
0.1
0.03
0.01
V_{CE} = 12 V
Ta = 100°C
75
50
25
0
–25
0.2
0.3
0.4
0.5
0.6
0.7
0.8
Base to Emitter Voltage V_{BE} (V)
DC Current Transfer Ratio vs. Collector Current
DC Current Transfer Ratio h_{FE}
1,200
1,000
800
600
400
200
0
V_{CE} = 12 V
Ta = 100°C
75
50
25
0
–25
0.01
0.03
0.1
0.3
1.0
3
10
30
Collector Current I_C (mA)



Gain Bandwidth Product vs.
Collector Current
Gain Bandwidth Product fT (MHz)
1,000
300
100
30
10
VCE = 12 V
0.01
0.03
0.1
0.3
1.0
3
10
30
Collector Current IC (mA)
Collector Output Capacitance vs.
Collector to Base Voltage
Collector Output Capacitance Cob (pF)
50
20
10
5
2
1.0
0.5
f = 1 MHz
IE = 0
1
3
10
30
100
Collector to Base Voltage VCB (V)
Area of Safe Operation
Collector Current IC (mA)
100
50
20
10
5
2
1
IC (max) (DC Operation)
Pc = 750 mW
Ta = 25°C
(50 V, 15 mA)
(100 V, 6 mA)
(120 V, 5 mA)
(140 V, 4 mA)
2SD756
2SD756A
2SD755
5
10
20
50
100
200
500
Collector to Emitter Voltage VCE (V)

Unit: mm



Hitachi Code	TO-92 Mod
JEDEC	—
EIAJ	Conforms
Weight (reference value)	0.35 g

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